REMARKS/ARGUMENTS

Claims 1, 7, 8, 10-14, 16-21, 23 and 24 are pending. By this Amendment, claims 1, 11, 21 and 24 are amended. Support for the amendments to claims 1, 11, 21 and 24 can be found, for example, in the present specification at page 4, lines 7 to 33 and page 5, lines 9 to 12, and in original claims 1, 11, 21 and 24. No new matter is added. In view of the foregoing amendments and following remarks, reconsideration and allowance are respectfully requested.

Information Disclosure Statement

The Office Action does not include an indication that each of the references cited in the March 17, 2006 Information Disclosure Statement has been considered by the Examiner. Applicants respectfully request that the Examiner consider of each of the cited references, indicate such consideration on the attached Form PTO-1449, and return the initialed form to the undersigned.

Objection to the Claims

The Office Action objects to claims 11 and 24 as including informalities. By this Amendment, claims 11 and 24 are amended to obviate the objection. Accordingly, reconsideration and withdrawal of the objection are respectfully requested.

Rejection Under 35 U.S.C. §112, Second Paragraph

The Office Action rejects claims 11 and 24 as indefinite under 35 U.S.C. §112, second paragraph. Applicants respectfully traverse the rejection.

The Office Action asserts that claims 11 and 24 are indefinite because the subscripts are undefined. Applicants submit that no definitions of the subscripts are required. As would

be appreciated by one of ordinary skill in the art, the subscripts are included merely to make clear that the enumerated elements are not necessarily present in a one-to-one ratio. However, the subscripts are not intended to limit the recited elements to any particular ratio. As one of ordinary skill in the art could readily discern whether a particular oxide falls within the recited formulae, the metes and bounds of the claim are clear. The Office Action appears to object not to the clarity of recited formulae, but rather to their breadth. As is well settled, breadth of a claim is not to be equated with indefiniteness. *See* MPEP §2173.04 (citing *In re Miller*, 169 U.S.P.Q. 597 (C.C.P.A. 1971)).

Claims 11 and 24 are definite. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

Rejection Under 35 U.S.C. §102

The Office Action rejects claims 1, 7, 11-14, 16-21, 23 and 24 under 35 U.S.C. §102(b) over U.S. Patent No. 6,045,896 to Boire et al. ("Boire"). Applicants respectfully traverse the rejection.

Claim 1 recites "[a] composite product, comprising: a transparent substrate; a multilayer system comprising a functional layer and a layer C; and a cover layer; wherein: the multilayer system has a solar-control function or an energy-control function; the functional layer reflects at least some radiation of the solar spectrum; the layer C comprises silicon or aluminum [nitride, carbonitride, oxynitride or oxycarbonitride], or a mixture of the two; the layer C is surmounted by the cover layer; the cover layer is an oxide-based mechanical protection layer, the oxide being optionally oxygen-substoichiometric or oxygen-superstoichiometric and/or optionally nitrided; and the cover layer comprises at least one of: (i) at least one titanium oxide comprising another metal M given by the formula $TiM_pO_xN_y$ where y may be zero; (ii) at least one mixed oxide comprising Zn and at least one other

element, the at least one mixed oxide optionally being doped with a further at least one element chosen from Al, Ga, In, B, Y, La, Ge, Si, P, As, Sb, Bi, Ce, Ti, Zr, Nb, Ta and Hf; and (iii) at least one oxide comprising Zr and at least one other metal" (emphasis added). Claim 21 is directed to process including, *inter alia*, applying a cover layer, as recited in claim 1, to a transparent substrate. Grimal does not disclose or suggest such a product or such a process.

As indicated above, claims 1 and 21 require (i) a transparent substrate, (ii) a multilayer system including a functional layer and a layer C, and (iii) a cover layer. Applicants note, in particular, that the cover layers in each of claims 1 and 21 requires a mixed oxide of titanium, zinc or zirconium and a further metal. Boire does not disclose a specific example including a cover layer including a mixed oxide of titanium, zinc or zirconium and a further metal, as recited in claim 1. Boire does not anticipate claims 1 and 21.

Boire does, however, include the following passage: "... the barrier layer ... may, in particular, be surmounted by at least one other layer based on a metal oxide or oxides, such as zinc oxide ZnO, tin oxide SnO_2, titanium oxide TiO_2, niobium oxide Nb_2O_5, tantalum oxide Ta_2O_5, aluminum oxide Al_2O_3 and tungsten oxide WO_3, or any mixture of at least two of these oxides." *See* Boire, column 7, lines 19 to 27. Applicants submit, however, that this passage does not provide sufficient guidance so that one of ordinary skill in the art would select a cover layer having the particular composition of the cover layer of claims 1 and 21. That is, Boire's indication that mixed oxides could possibly be used as a surmounting layer does not constitute disclosure or suggestion of employing any mixed oxide cover layer, much less the particular mixed oxide cover layers encompassed by claims 1 and 21. A *prima facie* case of obviousness has not been made.

However, even if a *prima facie* case were made, such case is rebutted by experimental results – "[a] *prima facie* case of obviousness ... is rebuttable by proof that the claimed compounds possess unexpectedly advantageous or superior properties." *See* MPEP §2144.09 (citing *In re Papesch*, 315 F.2d 381 (C.C.P.A. 1963)). As discussed above, the exemplary composite products in Boire do not include an oxide-based cover layer, much less the particular mixed oxide cover layers recited in claims 1 and 21.

Applicants note, first, Example 1 of the present specification, which is a comparative example (i.e., the structure of the composite product of Example 1 does not satisfy claims 1 and 21). In Example 1, a composite product without a cover layer (the top layer is an Si_3N_4 layer) is compared with a TiO_2 cover layer. That is, Example 1 compares a composite product with a cover layer with a composite product without a cover layer, as in the Examples of Boire. As can be seen in Table 1 of the present specification, the results for the composite product with the cover layer after the Washing Machine Test and after the Erichsen Test are improved relative to the composite product without a cover layer, but not superior in the absolute sense.

Applicants next direct attention to U.S. Patent Application No. 12/295,090 (the "090 application"), which has a common assignee with the present application and is directed to related technology. The 090 application includes an Example according to present claims 1 and 21. *See* 090 application, page 10, line 5 to page 11, line 3. The composite product of the Example of the 090 application has the following structure:

Glass / $25Si_3N_4$ / 9ZnO:Al / 11.5Ag / 3.5NiCr / 5ZnO:Al / $33Si_3N_4$ / $2Zn_2TiO_4$

As is evident from the foregoing, the cover layer is a mixed oxide according to the present invention (a mixed oxide of Ti and Zn). The composite product according to claims 1 and 21 disclosed in the 090 application, after the Washing Machine Test and the Taber Test, provides superior results relative to the equivalent results in Example 1 of the present

specification (discussed above). It takes more time to see degradation of the composite product after the Washing Machine Test and a greater loader charge (1N) is required to cause continuous scratches with the Taber Test. That is, a composite product according to claims 1 and 21 provides improved results in comparison with a composite product without a cover layer (specifically disclosed in Boire) and in comparison with a composite product with a simple oxide cover layer.

Finally, the present specification includes Example 7, which is a composite product according to claims 1 and 21. The composite product of Example 7 includes a mixed oxide of Zn and Sn as a cover layer. The composite product of Example 7 (example 7), after the Erichsen Test and the Taber Test, provides superior results relative to the equivalent results in Example 1 of the present specification (discussed above). The results of the Erichsen Test for the composite product of Example 7 of the present specification are better than the results for the composite product of Example 1 of the specification and better than the results for the Example of the 090 application -- a greater loader charge (4N) is required to cause continuous scratches. The results of the Taber Test for the composite product of Example 7 of the present specification are as good as results for the Example of the 090 application -- 80% of the stack is abraded in both cases. That is, similar, desirable results are achieved using a cover layer of a mixed oxide including Ti (and Zn) and a cover layer of a mixed oxide including Zn (and Ti), and the results are superior in both instances to composite products as exemplified in Boire.

These results are objective evidence of the improvements of the composite products of claim 1 and 21 over known composite products, as in Boire, and thus these results rebut any suggestion that it would have been obvious to modify the composite product of Boire to obtain claims 1 and 21.

As Boire fails to disclose or suggest employing a cover layer including a mixed oxide of titanium, zinc or zirconium and a further metal, Boire fails to disclose or suggest each and every feature of claims 1 and 21.

As explained, claims 1 and 21 are not anticipated by Boire. Claims 7, 11-14, 16-20, 23 and 24 depend from claims 1 and 21 and, thus, also are not anticipated by Boire. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

Rejection Under 35 U.S.C. §103

The Office Action rejects claims 8 and 10 under 35 U.S.C. §103(a) over Boire in view of U.S. Patent Application Publication No. US 2001/00313365 to Anderson et al. ("Anderson"). Applicants respectfully traverse the rejection.

For the reasons discussed above, Boire fails to disclose or suggest each and every feature of claim 1. Anderson does not remedy the deficiencies of Boire. Anderson is cited for its alleged disclosure of a $ZnTiO_x$ layer that is doped or a ZrO_2 layer that includes a further metal and is doped. *See* Office Action, pages 6 to 8. However, Anderson, like Boire, fails to disclose or suggest a composite product having the structure recited in claim 1. Accordingly, the combination of references fails to disclose or suggest each and every feature of claim 1.

As explained, claim 1 would not have been rendered obvious by Boire and Anderson. Claims 8 and 10 depend from claim 1 and, thus, also would not have been rendered obvious by Boire and Anderson. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

Conclusion

For the foregoing reasons, Applicants submit that claims 1, 7, 8, 10-14, 16-21, 23 and 24 are in condition for allowance. Prompt reconsideration and allowance are respectfully requested.

Respectfully submitted,

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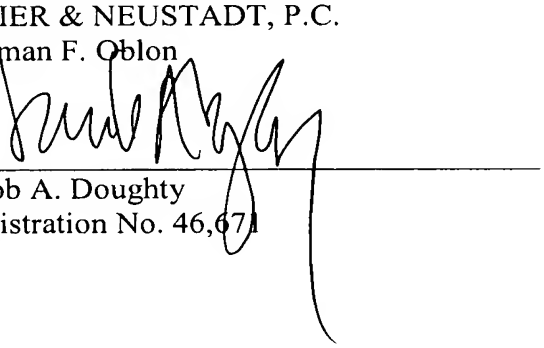

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